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Malignant Neoplasmata: Read in the Discussion before the New York State Medical Association, October 10, 1888.

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MALIGNANT NEOPLASMATA:

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Question 7. What is the rationale of the recurrence of excised neoplasmata in distant parts?

Question 8. What is the explanation of the tendency of certain neoplasmata to involve secondarily neighboring glands?

Question 13. Are malignant neoplasmata ever cured?

These and kindred queries have been made audibly and inaudibly for many years. The acute clinicians of the past have propounded them to the correspondingly learned pathologists of their time. The skilled surgeons too, in addition to this, have silently interrogated their own and the experience of others for the correct answers. The unfortunate victims of this disease have anxiously addressed the last question of this series to any and to all who might perchance offer them encouragement and consolation in their affliction. And now at the latest moment, after these years of thoughtful consideration given to them by master minds, the questions are asked again; therefore

> "Together let us beat the ample field,
> Try what the open, what the covert yield."

For the purposes of this discussion it is proper, I think, to limit consideration to malignant neoplasmata alone, since these are the growths that excite the greatest apprehension and call for the most judicious opinions and treatment. In this connection the expression malignant is understood to apply to the neoplasmata that are malignant by reason of their inherent nature, rather than by reason of certain destructive changes that may occur in growths irrespective of their nature, whereby the strength of the patient is sapped and death finally ensues from exhaustion dependent on septic and other secondary influences.

That a malignant neoplasm of a similar character as the one excised may occur in a part distant from the seat of the excision is a fact too well and too long recognized to require even a moment's consideration at this time; still, the exact reasons for this occurrence or recurrence are yet unsettled. It is aptly said: "The whole creation is a mystery, and particularly that of man." It might well be said, and as aptly, that normal vital force is a mystery, hence perverted vital force is alike mysterious.

It seems to me to be hardly necessary to give an entirely separate consideration to each of the first two questions allotted to me (seven and eight of the series). They are interdependent, for, when the "rationale of the recurrence of excised neoplasmata in distant parts" is stated, it will be seen that the explanation of this fact will comprehend all that is reliable regarding "the tendency of certain neoplasmata to involve neighboring lymphatic glands." The latter occurrence is but a well-defined step in the course of the more extended journey of the former. There are two genera of recurrent neoplasmata to which it is particularly desirable that attention be called—viz., carcinoma and sarcoma. These genera represent to the fullest extent the phenomena of the inception, cause, and termination of ma-

lignant growths. It is advisable at this time to recall some of the theories regarding the reasons for the occurrence and spread of carcinoma. It will be noticed that these propositions are of both a diverse and an interdependent character.

1. That carcinoma is the expression of a specific blood condition.

2. That a morbid material is present in the blood, which, coming in relation with appropriate tissue, enters into combination with it and causes the growth of the tumor.

3. The dyscrasia theory; the theory that the disease has its origin in the constitution at large, the tumor being only the local manifestation.

4. That the disease is purely local in its nature, arising from a local embryonal or idiopathic point of departure.

5. That it is due to a constitutional predisposition not dependent on dyscrasia in the ordinary acceptation of the term.

6. That it is due to perverted nervous influence. This is a curious but not a rational theory. In addition to these can be added a more modern theory—one that is attracting much attention at this time, viz.:

7. That malignant growths are of an entirely local origin, dependent on a specific local virus, endowed with characteristic bacilli.

There are many examples of this presumptive contagion cited, which, to say the least, afford somewhat startling evidence in favor of this last theory, since they can hardly be referred alone to the strangeness of coincidence.

If carcinoma and sarcoma were the expressions of a specific blood condition, the peculiar morbid blood state should then antedate the appearance of the tumor, and its existence should be quite as well marked before as after the appearance of the tumor. The fact is, the tumor, when ex-

ternal, always antedates the appearance of a depreciated blood state, often for some time.

The removal of a growing carcinoma or sarcoma may be followed by complete recovery from the disease, the patient maintaining perfect health thereafter. This could hardly happen if the occurrence of the disease had depended on a specific or peculiar blood state, unless it is assumed that the only tissue of the body susceptible to its influence had been removed by the operation, or that the blood had become pure, or that the tissues had become tolerant of the poison.

If carcinoma or sarcoma depended on a specific or peculiar blood condition, either of the growths should appear in different parts of the body, in like tissues at about the same time, and, too, each should recur after removal in a tissue similar to that which was first attacked, as in the opposite mammary gland, etc.

That these diseases have a hereditary bearing of importance, dependent either on tissue transmission or on some other process, it seems almost impossible to deny. The percentage of cases of cancer having hereditary association has been variously estimated. Sir James Paget expressed the belief that at least in one in three of the afflicted heredity could be traced, and traced, too, in such as had undoubted cancer. It is important to remember in this connection that not a few die of cancer in whom its existence has not been suspected. But why spend further time "carrying coals to Newcastle"? To-day the mass of evidence seems to point to the following facts:

1. That carcinoma and sarcoma depend entirely on local causes for an existence in many cases.

2. That they are more commonly a local manifestation of an inherent peculiarity of the tissues, called forth by some form of irritation at the seat of development.

Be this as it may, the local manifestations of these diseases are the first to be seen; they appeal first to the fears of the patient, and for these reasons they first invoke the wisdom of the medical profession. It is these manifestations that present to the mind of the medical profession the only point of departure from which to begin successful treatment. In this connection the question can now be asked, "How do malignant growths infect neighboring and distant parts?" There seems to be no doubt of the fact at this time that either the nuclei or the granular matter of the cells peculiar to malignant growths, or the cells themselves, are the agents that directly or indirectly cause the spread of the disease from the primary point of occurrence. These agents of infection are carried from the primary site by the lymph-vessels associated with the growth, and they often find a resting place in the lumen of these vessels, and are checked in their journey through them by the lymph-glands nearest to the point of departure. These infective agents are also conveyed directly to distant parts or viscera by means of the capillary blood-vessels, whose open mouths are frequently to be seen within the intimate structure of a highly vascular malignant growth. The cells of sarcomata especially possess an inherent tendency to "move on" and to otherwise extend their area and influence by increase of their number through the recognized process of cell-growth. By reason of these latter facts the normal tissues that surround malignant neoplasms become so infiltrated with the elements of the growth that ere long they, too, form a part of it, and exercise in turn a like influence on the neighboring structures. In sarcomata the blood-vessels are the chief means of the spread to distant parts, due, it is thought, to the better accommodation afforded by the blood-vessels to the size of the cells of the growth, and also to the intimate relations existing between the blood-vessels and these cells.

Sarcomatous tumors, therefore, spread more rapidly than the carcinomatous, and occur secondarily at greater distances from the initial growth. The cells of these growths reach their final resting places more commonly by means of the blood-current, which is rapid transit indeed as compared with the movement in the lymph-vessels, irrespective of the frequent interruptions of the latter by the lymph-gland locks of these vessels.

If such is the method of the spread of malignant tumors, it naturally ought to follow that the direction, extent, and rapidity of the spread will be in direct relation with the degree of vascularity of the growth, the richness of the region in lymphatics, and the density of the surrounding tissues, other things being equal. These conclusions seem to be well substantiated by clinical evidence, for the more vascular the tumor, the more rapid is its growth, and the sooner secondary processes of a similar nature are established in distant parts; the richer the contiguous structures are in lymph-vessels and glands, the sooner the disease establishes secondary footholds in the neighborhood and he more difficult the eradication becomes; the denser the surrounding tissues of the growth, the slower are the processes of infiltration. The influence of this density is often well shown by the irregularity in the outline of a rapidly developing tumor, which extends more rapidly in the direction of the least resistance. Malignant growths can be produced also by inoculation and self-inoculation. These methods of causation are believed to be strong arguments in favor of the specific-virus theory of the causation and dissemination of malignant formations. Malignant growths vary from each other in the rapidity of dissemination, a fact which appears to depend largely indeed on their anatomical peculiarities; as, for instance, abundant granular matter, small cells, great vascularity, and loose structural ar-

ERRATUM.

Page 7, line 5 from bottom, for "the late Professor S. D. Gross" read "Professor S. W. Gross."

rangement of the tumor and of the surrounding tissue, are some of the conditions that are associated with rapid dissemination. It now remains to be said that the carrying from the initial growth to a near or distant part of any of the infecting elements of a growth, by either of the means of transmission already mentioned, causes the development in the part at the place of lodgment of a growth similar in all respects to that from which the infecting agent took its departure. In this secondary depot, processes and changes take place similar to those that had occurred in the primary one, and it in turn disseminates its virulency to the parts allied to it by associated function or contact.

Thus far in this paper the constitutional aspect of the question of the production and dissemination of malignant neoplasmata has not been given a hearing. The lack of time and space will not permit me to discuss this phase of the disease up to the point of the belief that I shall express in the matter. Malignant disease as such is not inherited, but analogy alone in respect to transmitted similarities of a different kind teaches us that the tendency of malignant disease, as expressed by the vulnerability of the cell tissue to the peculiar or exciting influences of the growth, is transmissible from parent to offspring.

Question 13. Are malignant neoplasmata ever cured?

This question can be safely answered in the affirmative. The efforts of nature alone are reported to have effected a cure in rare instances. The endeavors of the surgeon, too, have been followed by a fair percentage of cures. The site of the growth, however, has much to do with the result in this respect. The late Professor S. D. Gross expressed the belief that 9 per cent. of mammary cancers could be cured by thorough operation when employed at the proper time. Butlin reports 38 per cent. of the cases of cancer of the lower lip to have passed the three years' limit of cure without re-

turn. Gross felt assured that a year might be added to the lives of patients by operation on those unfavorable for cure. It is not my intention to cite cases of real or presumptive cure that have come under my personal observation, since they will add nothing important to the results that have just been mentioned. It is my intention, however, to embrace this opportunity, under this heading, to speak in emphatic terms of the measures which I think necessary to be adopted to gain the full benefit to the patient of the surgeon's ability to cope successfully with a larger number of cases of this disease.

This consideration will be divided into the following headings:

1. Early diagnosis of the nature of the morbid growth.
2. Prompt and thorough treatment of it.

The early diagnosis of malignant disease will require the timely action of three distinct agents: (1) of the patient; (2) of the medical attendant; (3) of a microscopical expert. The natural inclinations of a member of the human family who is in the possession of a rational mind lead him to resent the idea of the occurrence of malignant disease in himself or in one of his own. He will not infrequently seek advice from the sources which will afford him the greatest personal comfort, irrespective of the wise promptings of his own judgment in the matter. This course, on his part, is due quite as much to pride and sentiment as to dread of being informed of the actual facts of his case. The medical attendant can do very much indeed to rectify this unfortunate state of affairs. He should consider it a case of *emergency* in the full sense of the term, and advise the patient of a course of action that will meet the full requirements of it. But how does the medical attendant in a multitude of instances fulfill his duty in this respect? He, too, is often controlled by sentiment, or by a habit of professional moral

syncope that permits him to shirk unpleasant responsibility. Sentiment causes the physician to encourage the patient in the belief of non-malignancy; to smile at his fears, if he has any, and, whether he has them or not, to say to him: "Come in a week or two if it is no better," or, "Come and see me again after a while," or, "Don't think it amounts to much; any way, don't worry," and at the same time he recommends something simple "for the blood" or for external application. A physician might do worse than this, and there is great danger that he will; he might disguise the characteristics of the morbid growth and accelerate its development by the application to it of some form of caustic, believing it to be good treatment in any case. Professional carelessness—better named professional shiftlessness—may permit the medical attendant to omit obtaining the history of the case or omit the examination of the diseased part except with a glance. Such methods of procedure as these are culpable, whether the patient is afflicted with a real or with a fancied disease. A hospital surgeon, or one with a private *clientèle*, can recall many instances of consultations with victims afflicted with malignant disease in whom the opportunity of affording more than temporary relief has been sacrificed by the ignorant or sentimental dalliance of a medical attendant. Patients should be educated in the belief that "an ounce of prevention is better than a pound of cure." The adoption of this line of action will cause patients to seek information whenever anything unusual happens to them, and then the physician who performs his Christian and professional duties well will solve the nature of the affliction at once, or as soon as possible thereafter. The patient who is left largely to his own discretion by the emasculated admonitions, "Drop in when you are this way" or "when you come to town," etc., is lured into a sense of safety that will lead him to stifle the wise promptings of

his own good judgment. If the physician finds himself unable to determine the nature of the growth by the means at his command, the aid of the microscopist should be sought at once. It may be said that this aid can not be had in all instances, and that it too is not conclusive. The instances when this aid can not be had are very few indeed. The medical attendant has only to remove a small portion of the growth, if accessible, properly inclose it and send it by mail to the nearest recognized authority on the microscopical appearances of morbid growths, with a statement of the part of the body from which it was taken, and of his suspicions regarding it. In a few days at most the answer will be at hand. It is proper to add, in this connection, that the inclosure of a fee for the examination will in no way delay matters, nor detract from the value of the opinion. As to the importance to be placed on the opinion, I think I may say that it should always be considered as *one* of the determining factors of a diagnosis, rather than as conclusive evidence of it. In only rare instances in my experience has the microscope failed to decide the question for or against malignancy.

None but simple and unirritating applications should have been made to a suspicious growth prior to the completion of the diagnosis. If it be necessary to remove a suspicious growth, for any reason, before a diagnosis can be confirmed by microscopical examination, this aid should be sought as soon thereafter as possible, since the knowledge thus gained will become of great importance in estimating the subsequent treatment and final prognosis.

Treatment.—The treatment should always be twofold—constitutional and local. The former should be of a kind intended to strengthen the patient in every possible manner, in order that the healthy tissue cells of the patient's organism may be the better able to resist the influence on

them of the cells and other products of the malignant growth. Special general medication, with the view of curing or delaying the progress of the growth, will proved elusive, and will be destructive, if it is employed to the exclusion of operative procedure. Let the maxim ever be, *Operate first, medicate afterward.* The use of the knife is the operative measure to which the patient should be subjected. The growth should be removed thoroughly by excision at the earliest possible moment after the diagnosis is made, and, if a doubt exist as to the nature of the growth, give the benefit of that doubt to the patient and remove the growth at once. The earlier the removal, the better will be the chance of preventing and limiting dissemination. Any and every measure of treatment that will stimulate unnecessarily the flow of blood to the growth, or stimulate the action of the lymphatics in the neighborhood, should be avoided, for these results of irritation of the growth are directly productive of the dissemination of the infecting agents of the disease to the lymph-glands and distant parts by means of the blood and lymph currents associated with it. The knife meets the indications better than all other means for the removal of malignant growths for the following reasons:

1. It can be applied with precision at a greater distance from the growth than can any other measure.

2. It acts promptly and with less injury to contiguous tissues than any other agent; and without pain if anæsthesia be employed.

3. Healing takes place immediately when removal is done early and with proper care.

4. Neither irritation nor pain attends the healing process if the surgical indications of the wound have been carefully observed.

5. Cicatrization and deformity are less than from the use of caustics and other local agents.

The preceding are some of the practical advantages that attend the proper use of the knife for the removal of malignant growths with antiseptic precautions. The converse of these usually attends the use of caustic, cautery, and other means that are more slowly effective, and with the use of which, suppuration, ulceration, and sloughing, and their histological processes, antedate and often complicate the final healing. I am of the opinion that with an early diagnosis, prompt, repeated, and wide removal of malignant growths with the knife, a much larger number of lives will be spared, with a minimum of suffering to the patients. The surgeon's watchwords ought to be, *Cut early, cut often, cut wide, and remove contiguous lymphatic structures when practicable, whether diseased or not.*

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